

Amendments to the Claims:

Please amend the present claims as follows and insert new claims 31 and 32.

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) An isolated DNA molecule ~~characterised in that it comprises~~ comprising a gene encoding an enzyme protein which has an NADH dependent L-xylulose reductase activity.
2. (Currently Amended) An isolated DNA molecule according to claim 1, ~~characterised in that the enzyme protein~~ wherein the NADH dependent L-xylulose reductase has a catalytic activity for the reversible conversion of a sugar, which bears a keto group at carbon 2 (C2 position), to a sugar alcohol bearing a hydroxyl group at C2 in L-configuration in a Fischer projection.
3. (Currently Amended) An isolated DNA molecule according to claim 1, ~~characterised in that the enzyme protein~~ wherein the NADH dependent L-xylulose reductase comprises an amino acid sequence of SEQ ID No. 2 or a functionally equivalent derivative thereof.
4. (Currently Amended) An isolated DNA molecule according to claim 1, ~~characterised in that the enzyme protein is~~ wherein the NADH dependent L-xylulose reductase is of fungal origin.
5. (Currently Amended) An isolated DNA molecule according to claim 4, ~~characterised in that said~~ wherein the fungal origin is *Ambrosiozyma monospora*.
6. (Currently Amended) An isolated DNA molecule according to claim 1, ~~characterised in that~~ wherein the gene comprises a nucleic acid sequence of SEQ ID No. 1 or a functionally equivalent derivative thereof.

7. (Currently Amended) An isolated DNA molecule according to claim 1, ~~characterised in that~~ wherein the NADH dependent L-xylulose reductase exhibits a catalytic activity for reversible conversion of xylulose to xylitol.
8. (Original) A vector comprising the DNA molecule according to claim 1.
9. (Withdrawn) A genetically modified microorganism transformed with the DNA molecule according to claim 1 for expressing said NADH dependent L-xylulose.
10. (Withdrawn) A genetically modified microorganism according to claim 9, **characterised** in that it has an ability to utilise a sugar or a sugar alcohol.
11. (Withdrawn) A genetically modified microorganism according to claim 10, **characterised** in that it has an ability to utilise L-arabinose.
12. (Withdrawn) A genetically modified microorganism according to claim 9, **characterised** in that the microorganism produces derivatives of at least one of fungal L-arabinose pathway or of pentose phosphate pathway.
13. (Withdrawn) A genetically modified microorganism according to claim 9, **characterised** in that the microorganism contains at least genes of a fungal L-arabinose pathway, which encode enzymes of aldose reductase and of L-arabinitol 4-dehydrogenase, for expression thereof.
14. (Withdrawn) A genetically modified microorganism according to claim 13, **characterised** in that the microorganism contains genes of the fungal L-arabinose pathway, which encode enzymes of at least one of D-xylulose reductase or xylulokinase.
15. (Withdrawn) The microorganism of claim 14 further including genes encoding of D-xylulose of pentose phosphate pathway.

16. (Withdrawn) A genetically modified microorganism according to claim 9, **characterised** in that the microorganism produces at least one of arabinitol, xylitol, ethanol or lactic acid.
17. (Withdrawn) A genetically modified microorganism according to claim 9, **characterised** in that the genetically modified microorganism is a fungus.
18. (Withdrawn) The microorganism of claim 17 wherein the fungus is a yeast or a filamentous fungus.
19. (Withdrawn) A genetically modified microorganism according to claim 18, **characterised** in that the yeast is a strain of *Saccharomyces* species, *Schizosaccharomyces* species, *Kluyveromyces* species, *Pichia* species, *Candida* species or *Pachysolen* species.
20. (Withdrawn) A genetically modified microorganism according to claim 19, **characterised** in that the strain is *S. cerevisiae*.
21. (Withdrawn) A genetically modified microorganism according to claim 18, **characterised** in that the filamentous fungus is strain of *Aspergillus* species, *Trichoderma* species, *Neurospora* species, *Fusarium* species, *Penicillium* species, *Humicola* species, *Tolypocladium geodes*, *Trichoderma reesei* (*Hypocrea jecorina*), *Mucor* species, *Trichoderma longibrachiatum*, *Aspergillus nidulans*, *Aspergillus niger* or *Aspergillus awamori*.
22. (Withdrawn) A method for producing a fermentation product from a carbon source comprising a carbohydrate, **characterised** in that the method includes steps of culturing a genetically modified microorganism according to claim 9 in presence of a carbon source under fermentation conditions.

23. (Withdrawn) A method according to claim 22, **characterised** in that the carbon source comprises L-arabinose.
24. (Withdrawn) A method according to claim 22, **characterised** in that the carbon source comprises L-arabinose and the fermentation product is selected from a product of a fungal L-arabinose pathway and a product of a pentose phosphate pathway.
25. (Withdrawn) An enzyme protein which has an NADH dependent L-xylulose reductase activity and comprises an amino acid sequence encoded by a gene of a DNA molecule of claim 1.
26. (Withdrawn) An enzyme protein according to claim 25, **characterised** in that the enzyme protein comprises an amino acid sequence of SEQ ID No. 2 or a functionally equivalent derivative thereof.
27. (Withdrawn) An *in vitro* enzymatic preparation for producing conversion products from a carbon source, **characterised** in that said preparation comprises an enzyme protein which comprises an amino acid sequence encoded by DNA molecule according to claim 1.
28. (Withdrawn) A method of conversion of a sugar comprising contacting the sugar with an NADH dependent L-xylulose reductase enzyme, comprising an amino acid sequence encoded by a gene of a DNA molecule of claim 1, wherein the sugar has a keto group at C2 position and is converted to a sugar alcohol with a hydroxyl group at C2 in L-configuration in a Fischer projection, or for reversed conversion thereof.
29. (Withdrawn) The method of claim 28, **characterised** in that the enzyme is produced by a genetically engineered microorganism in a fermentation medium

which comprises the sugar or the sugar alcohol, in fermentation conditions that enable conversion by said enzyme.

30. (Withdrawn) The method of claim 28, **characterised** in that the conversion is an *in vitro* enzymatic conversion.

31. (New) An isolated DNA molecule according to claim 1, wherein the gene encodes a protein having the amino acid sequence of SEQ ID No. 2.

32. (New) An isolated DNA molecule according to claim 1, wherein the gene comprises the nucleic acid sequence of SEQ ID No. 1.